Fig.1

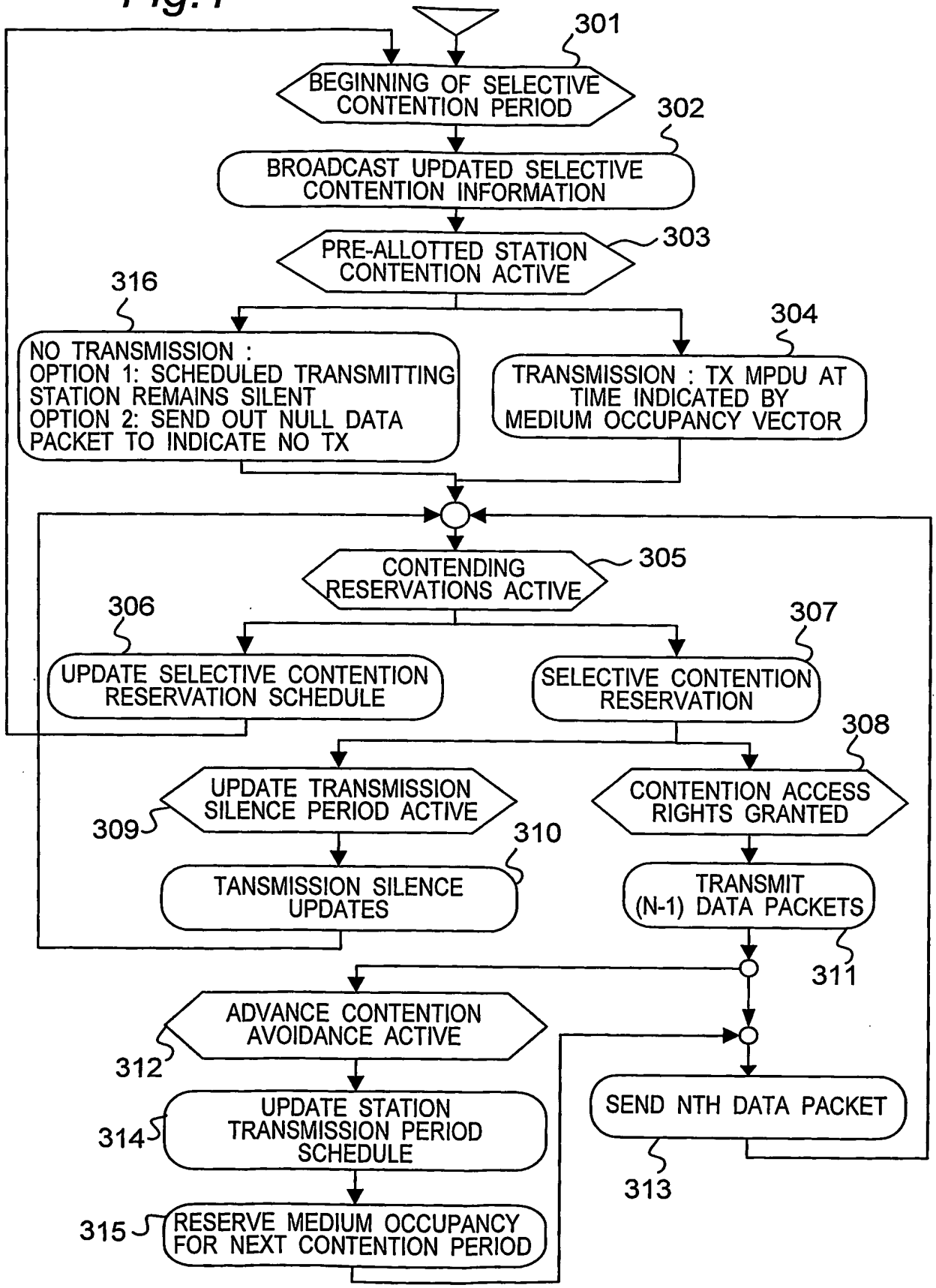
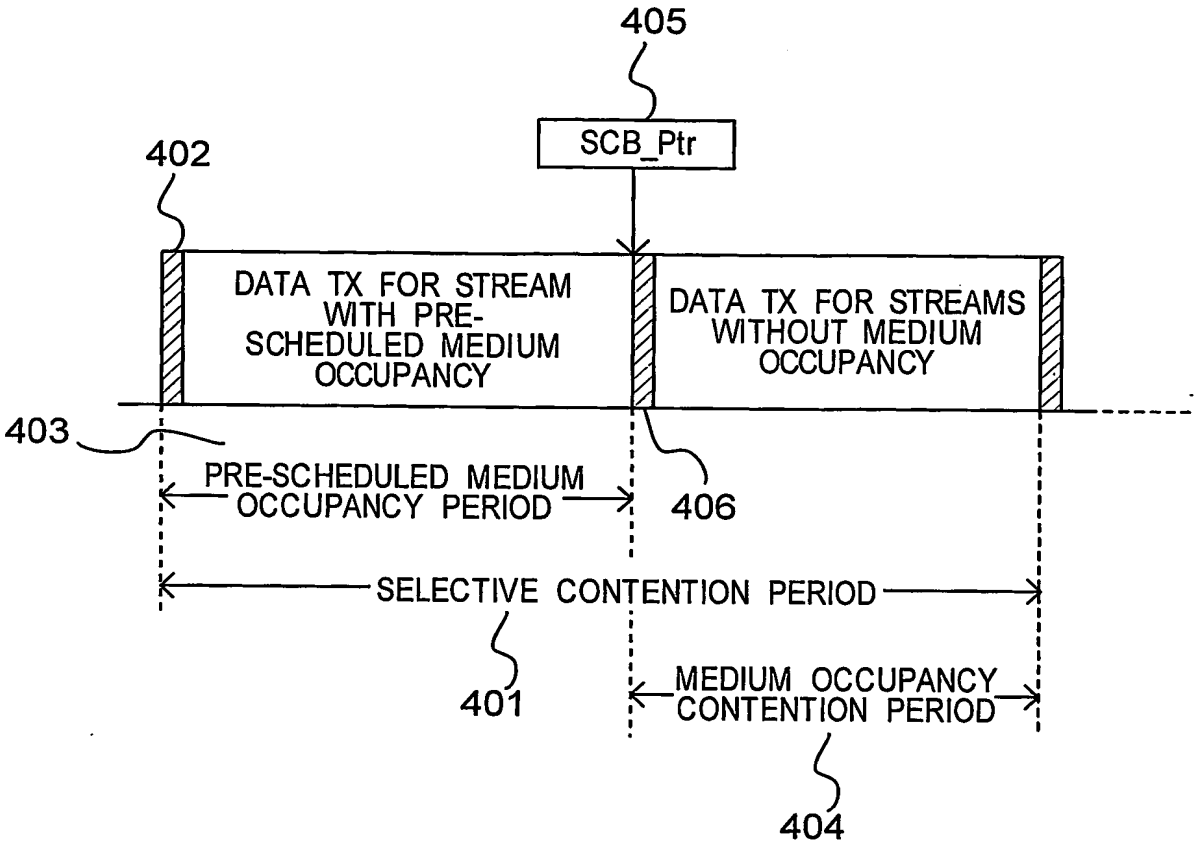

301
BEGINNING OF SELECTIVE CONTENTION PERIOD
302
BROADCAST UPDATED SELECTIVE CONTENTION INFORMATION
303
PRE-ALLOTTED STATION CONTENTION ACTIVE
316
NO TRANSMISSION :
OPTION 1: SCHEDULED TRANSMITTING STATION REMAINS SILENT
OPTION 2: SEND OUT NULL DATA PACKET TO INDICATE NO TX
304
TRANSMISSION : TX MPDU AT TIME INDICATED BY MEDIUM OCCUPANCY VECTOR
305
CONTENDING RESERVATIONS ACTIVE
306
UPDATE SELECTIVE CONTENTION RESERVATION SCHEDULE
307
SELECTIVE CONTENTION RESERVATION
308
309
UPDATE TRANSMISSION SILENCE PERIOD ACTIVE
310
TANSMISSION SILENCE UPDATES
CONTENTION ACCESS RIGHTS GRANTED
TRANSMIT (N-1) DATA PACKETS
311
ADVANCE CONTENTION AVOIDANCE ACTIVE
312
314
UPDATE STATION TRANSMISSION PERIOD SCHEDULE
315
RESERVE MEDIUM OCCUPANCY FOR NEXT CONTENTION PERIOD
SEND NTH DATA PACKET
313

Fig.2


405
SCB_Ptr
402
DATA TX FOR STREAM WITH PRE-SCHEDULED MEDIUM OCCUPANCY
DATA TX FOR STREAMS WITHOUT MEDIUM OCCUPANCY
403
PRE-SCHEDULED MEDIUM OCCUPANCY PERIOD
406
SELECTIVE CONTENTION PERIOD
401
MEDIUM OCCUPANCY CONTENTION PERIOD
404

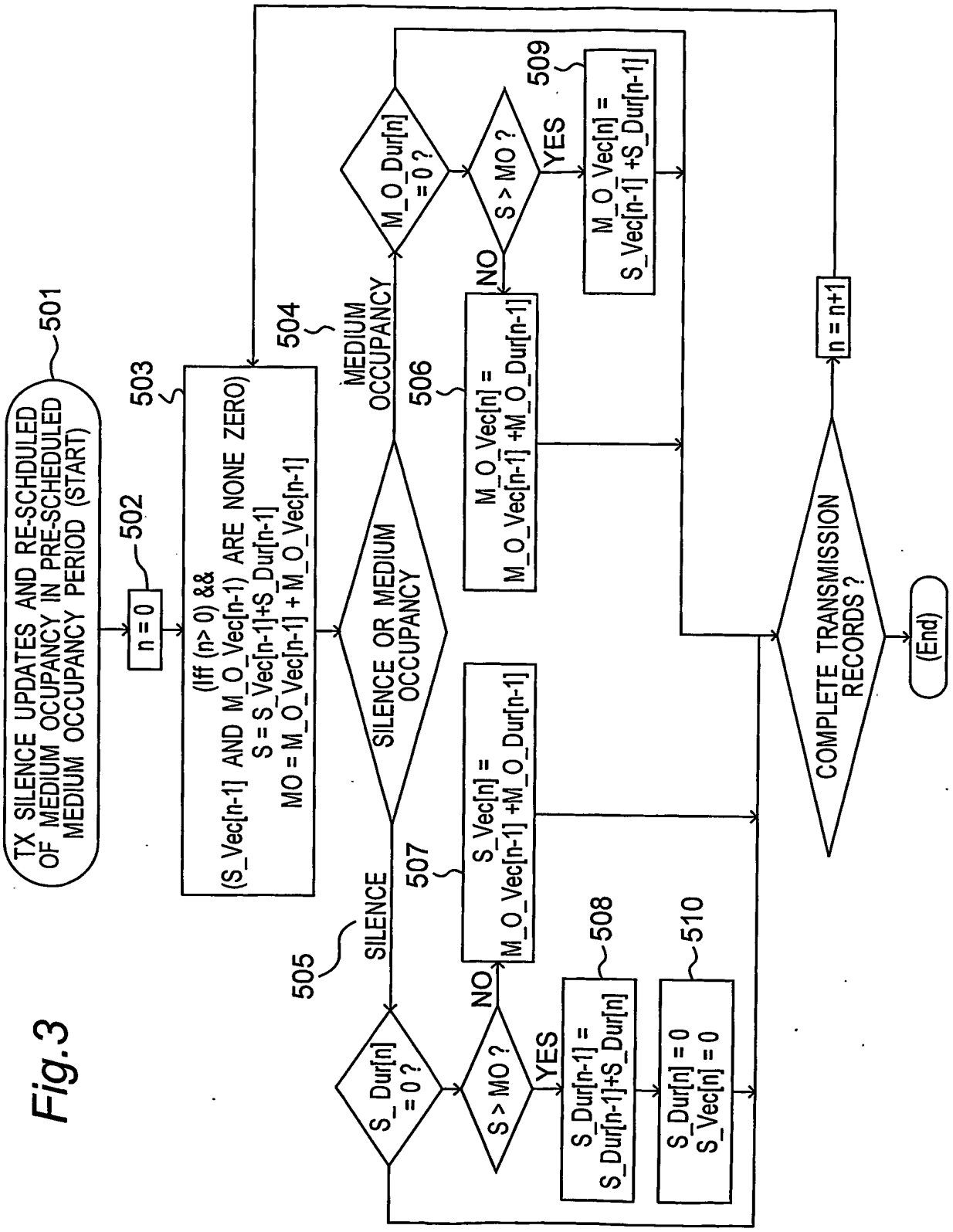

TX SILENCE UPDATES AND RE-SCHDULED OF MEDIUM OCUPANCY IN PRE-SCHEDULED MEDIUM OCCUPANCY PERIOD (START)
501
n = 0
502
(Iff (n> 0) && (S_Vec[n-1] AND M_O_Vec[n-1] ARE NONE ZERO) S = S_Vec[n-1]+S_Dur[n-1] MO = M_O_Vec[n-1] + M_O_Vec[n-1]
503
MEDIUM OCCUPANCY
504
SILENCE OR MEDIUM OCCUPANCY
505
SILENCE
S_Dur[n] = 0 ?
S > MO ?
NO
YES
S_Vec[n] = M_O_Vec[n-1] +M_O_Dur[n-1]
507
S_Dur[n-1] = S_Dur[n-1]+S_Dur[n]
508
S_Dur[n] = 0 S_Vec[n] = 0
510
M_O_Dur[n] = 0 ?
S > MO ?
NO
YES
M_O_Vec[n] = M_O_Vec[n-1] +M_O_Dur[n-1]
506
M_O_Vec[n] = S_Vec[n-1] +S_Dur[n-1]
509
n = n+1
COMPLETE TRANSMISSION RECORDS ?
(End)

Fig.3

Fig.4

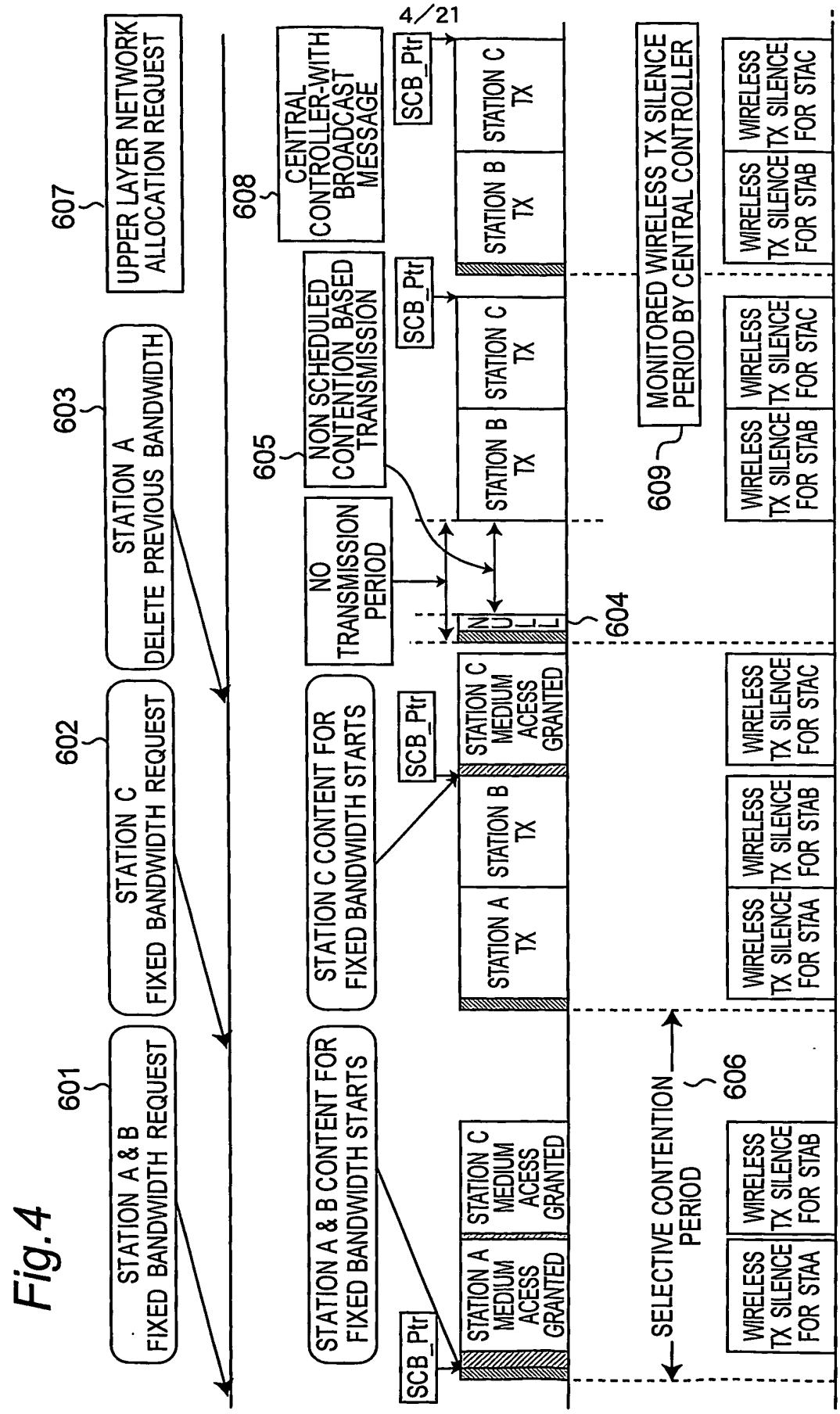

601
STATION A & B FIXED BANDWIDTH REQUEST
602
STATION C FIXED BANDWIDTH REQUEST
603
STATION A DELETE PREVIOUS BANDWIDTH
607
UPPER LAYER NETWORK ALLOCATION REQUEST
608
CENTRAL CONTROLLER-WITH BROADCAST MESSAGE
605
NON SCHEDULED CONTENTION BASED TRANSMISSION
NO TRANSMISSION PERIOD
SCB_Ptr
STATION A & B CONTENT FOR FIXED BANDWIDTH STARTS
STATION C CONTENT FOR FIXED BANDWIDTH STARTS
STATION A MEDIUM ACESS GRANTED
STATION C MEDIUM ACESS GRANTED
STATION A TX
STATION B TX
STATION C TX
NULL
604
WIRELESS TX SILENCE FOR STAA
WIRELESS TX SILENCE FOR STAB
WIRELESS TX SILENCE FOR STAC
SELECTIVE CONTENTION PERIOD
606
609
MONITORED WIRELESS TX SILENCE PERIOD BY CENTRAL CONTROLLER

Fig.5

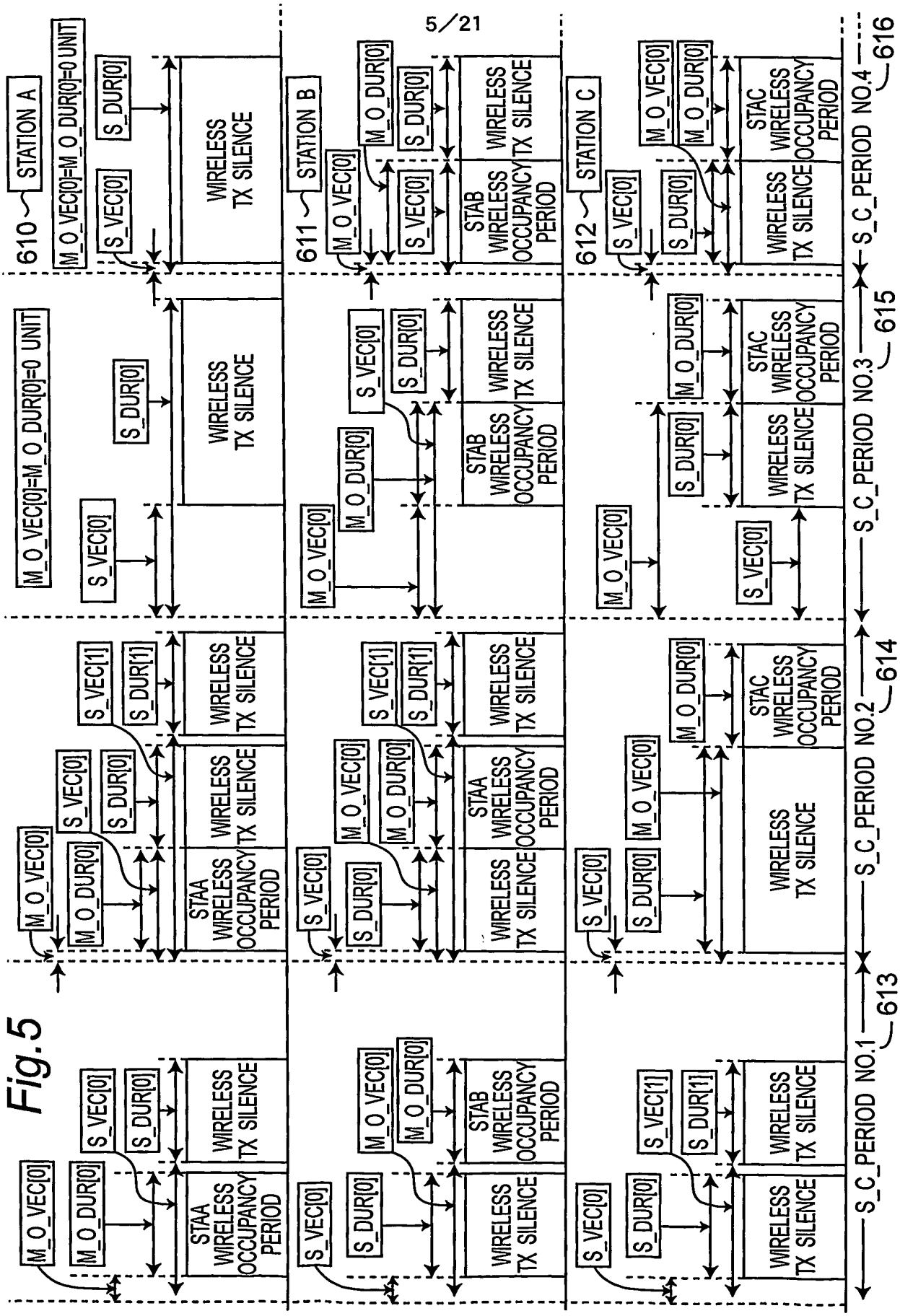

STATION A
STATION B
STATION C
610
611
612
M_O_VEC[0]=M_O_DUR[0]=0 UNIT
S_VEC[0]
S_DUR[0]
S_VEC[1]
S_DUR[1]
M_O_VEC[0]
M_O_DUR[0]
WIRELESS TX SILENCE
STAA WIRELESS OCCUPANCY PERIOD
STAB WIRELESS OCCUPANCY PERIOD
STAC WIRELESS OCCUPANCY PERIOD
S_C_PERIOD NO.1
S_C_PERIOD NO.2
S_C_PERIOD NO.3
S_C_PERIOD NO.4
613
614
615
616

Fig.6

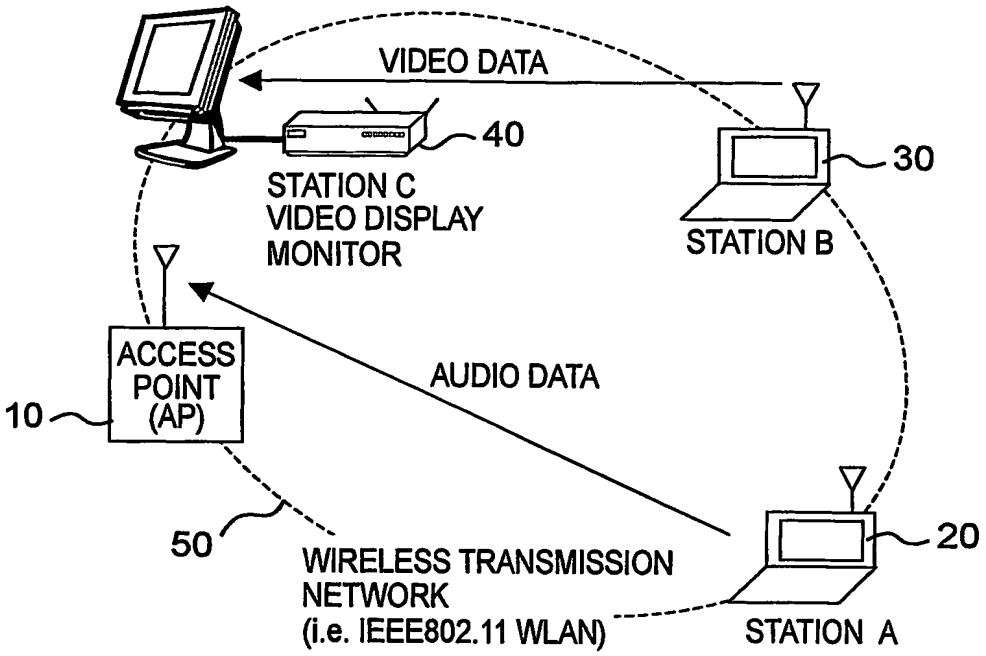

VIDEO DATA
40
STATION C
VIDEO DISPLAY
MONITOR
30
STATION B
ACCESS
POINT
(AP)
10
AUDIO DATA
50
WIRELESS TRANSMISSION
NETWORK
(i.e. IEEE802.11 WLAN)
20
STATION A

Fig.7A

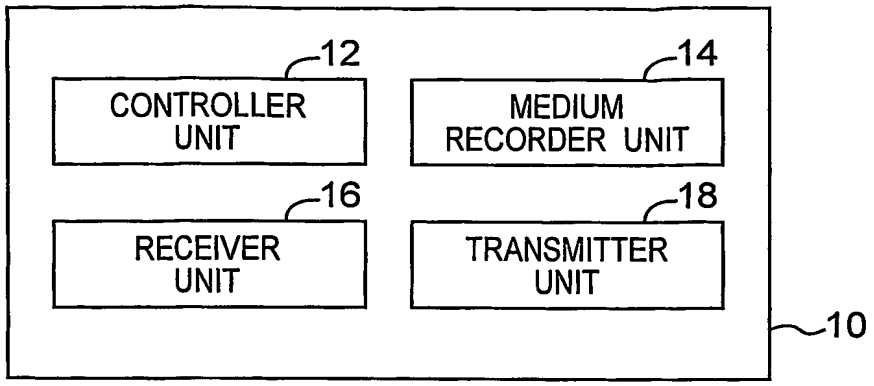

12
CONTROLLER UNIT
14
MEDIUM RECORDER UNIT
16
RECEIVER UNIT
18
TRANSMITTER UNIT
10

Fig.7B

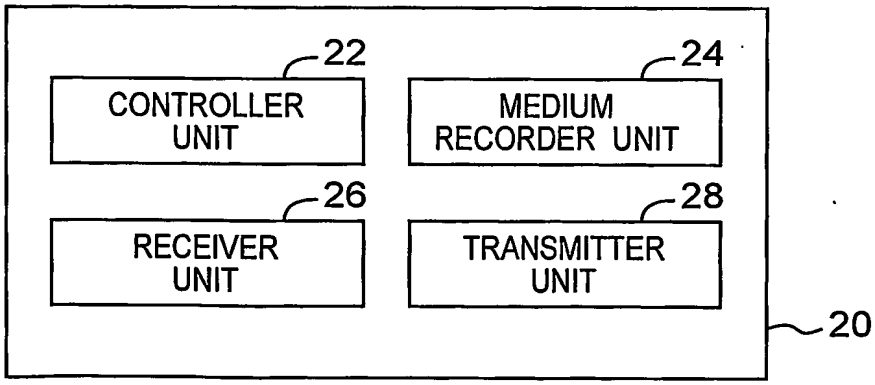

22
CONTROLLER UNIT
24
MEDIUM RECORDER UNIT
26
RECEIVER UNIT
28
TRANSMITTER UNIT
20

Fig.8

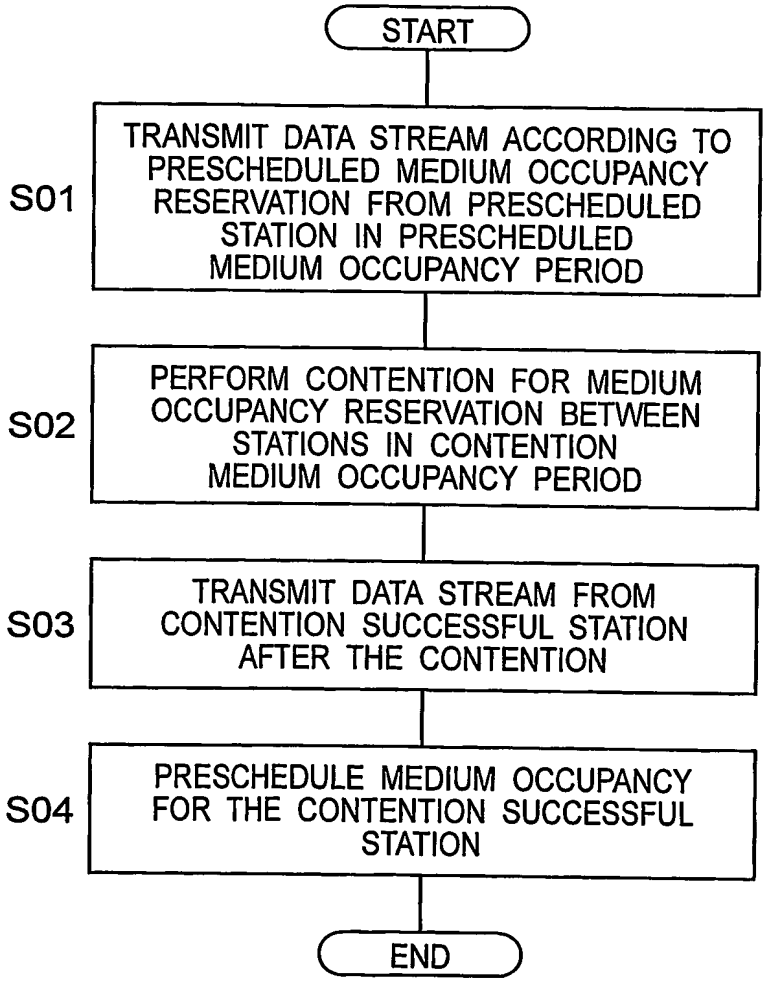
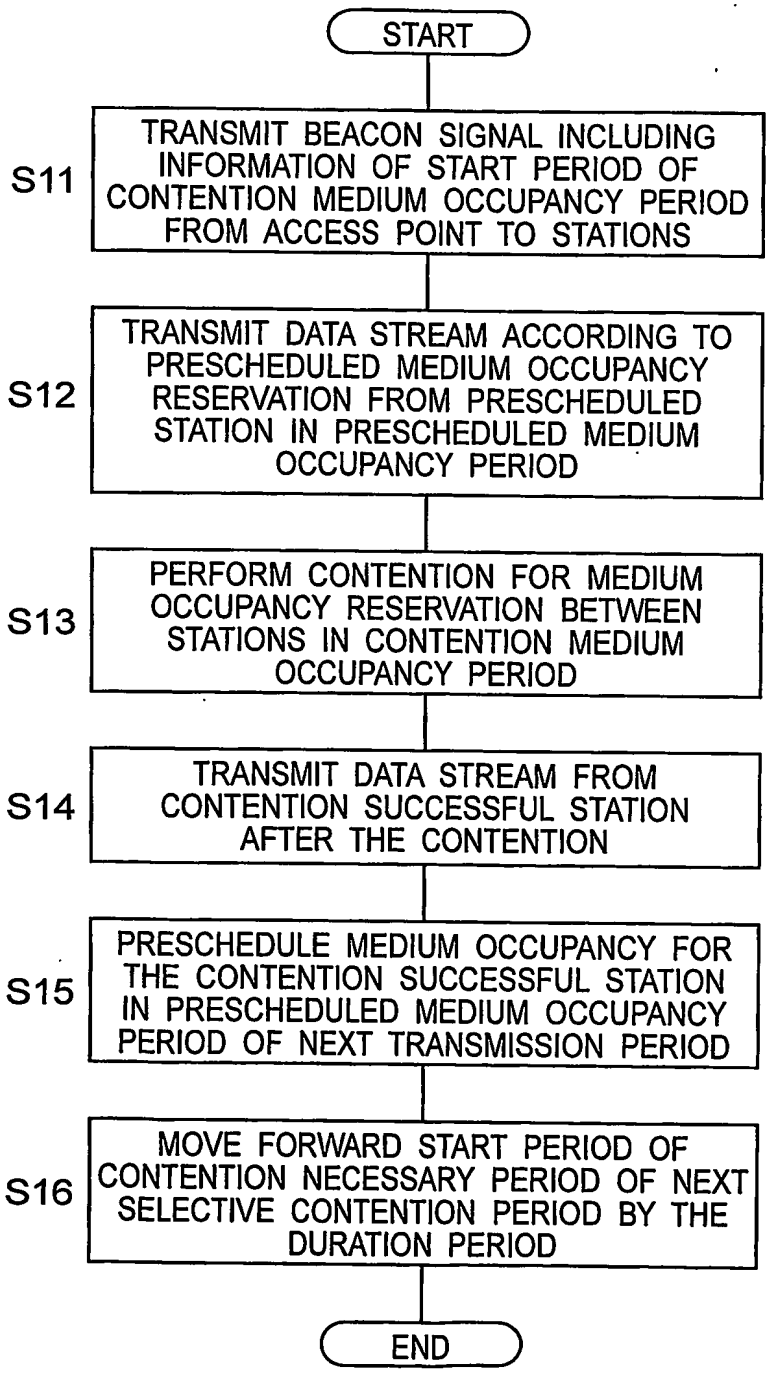

START
S01
TRANSMIT DATA STREAM ACCORDING TO PRESCHEDULED MEDIUM OCCUPANCY RESERVATION FROM PRESCHEDULED STATION IN PRESCHEDULED MEDIUM OCCUPANCY PERIOD
S02
PERFORM CONTENTION FOR MEDIUM OCCUPANCY RESERVATION BETWEEN STATIONS IN CONTENTION MEDIUM OCCUPANCY PERIOD
S03
TRANSMIT DATA STREAM FROM CONTENTION SUCCESSFUL STATION AFTER THE CONTENTION
S04
PRESCHEDULE MEDIUM OCCUPANCY FOR THE CONTENTION SUCCESSFUL STATION
END

Fig.9


START
S11
TRANSMIT BEACON SIGNAL INCLUDING INFORMATION OF START PERIOD OF CONTENTION MEDIUM OCCUPANCY PERIOD FROM ACCESS POINT TO STATIONS
S12
TRANSMIT DATA STREAM ACCORDING TO PRESCHEDULED MEDIUM OCCUPANCY RESERVATION FROM PRESCHEDULED STATION IN PRESCHEDULED MEDIUM OCCUPANCY PERIOD
S13
PERFORM CONTENTION FOR MEDIUM OCCUPANCY RESERVATION BETWEEN STATIONS IN CONTENTION MEDIUM OCCUPANCY PERIOD
S14
TRANSMIT DATA STREAM FROM CONTENTION SUCCESSFUL STATION AFTER THE CONTENTION
S15
PRESCHEDULE MEDIUM OCCUPANCY FOR THE CONTENTION SUCCESSFUL STATION IN PRESCHEDULED MEDIUM OCCUPANCY PERIOD OF NEXT TRANSMISSION PERIOD
S16
MOVE FORWARD START PERIOD OF CONTENTION NECESSARY PERIOD OF NEXT SELECTIVE CONTENTION PERIOD BY THE DURATION PERIOD
END

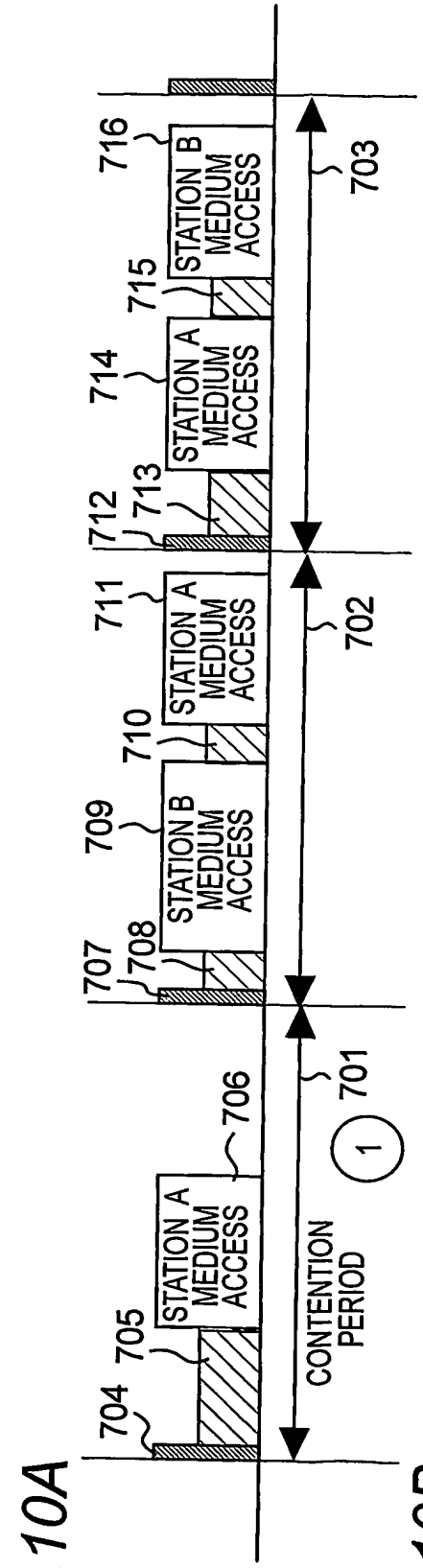


Fig.10A

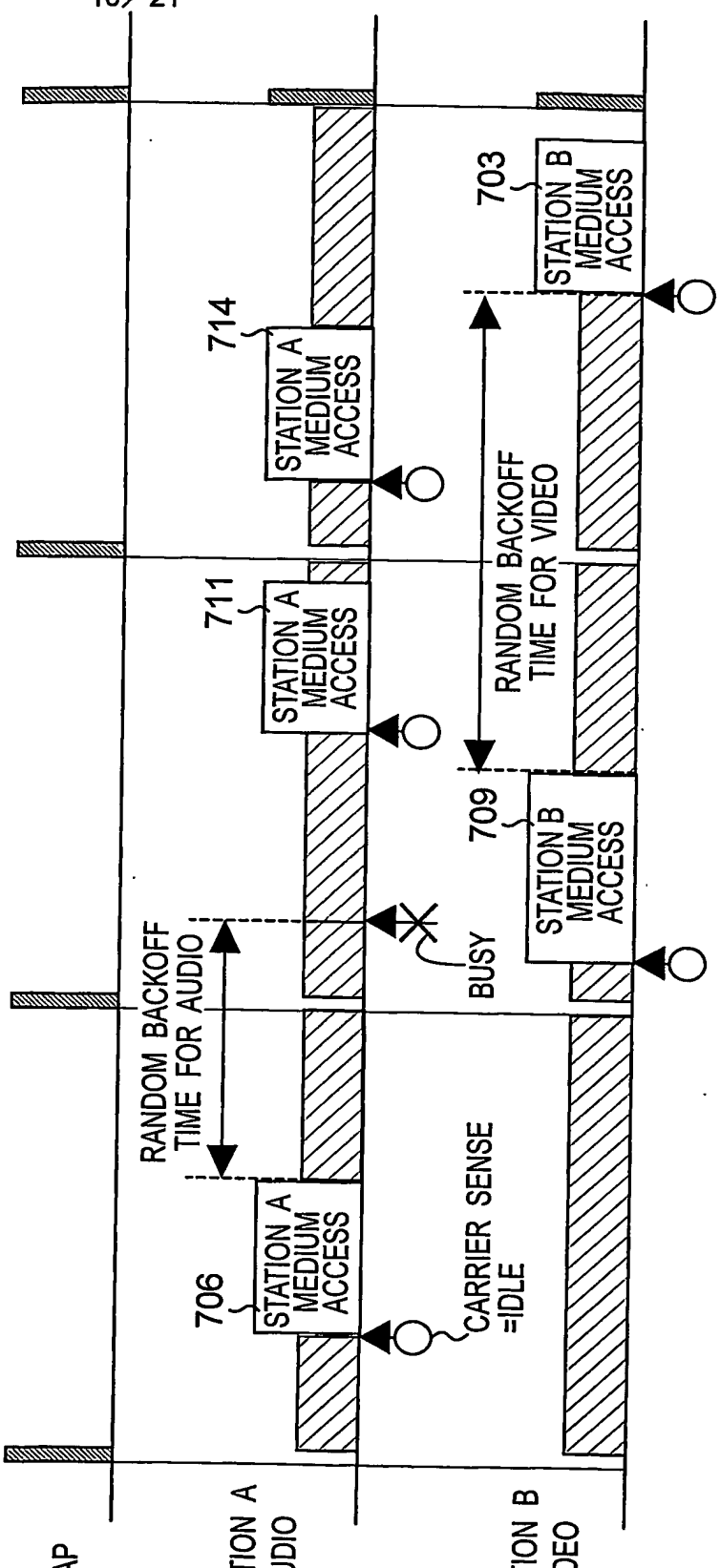


Fig.10B

Fig. 11

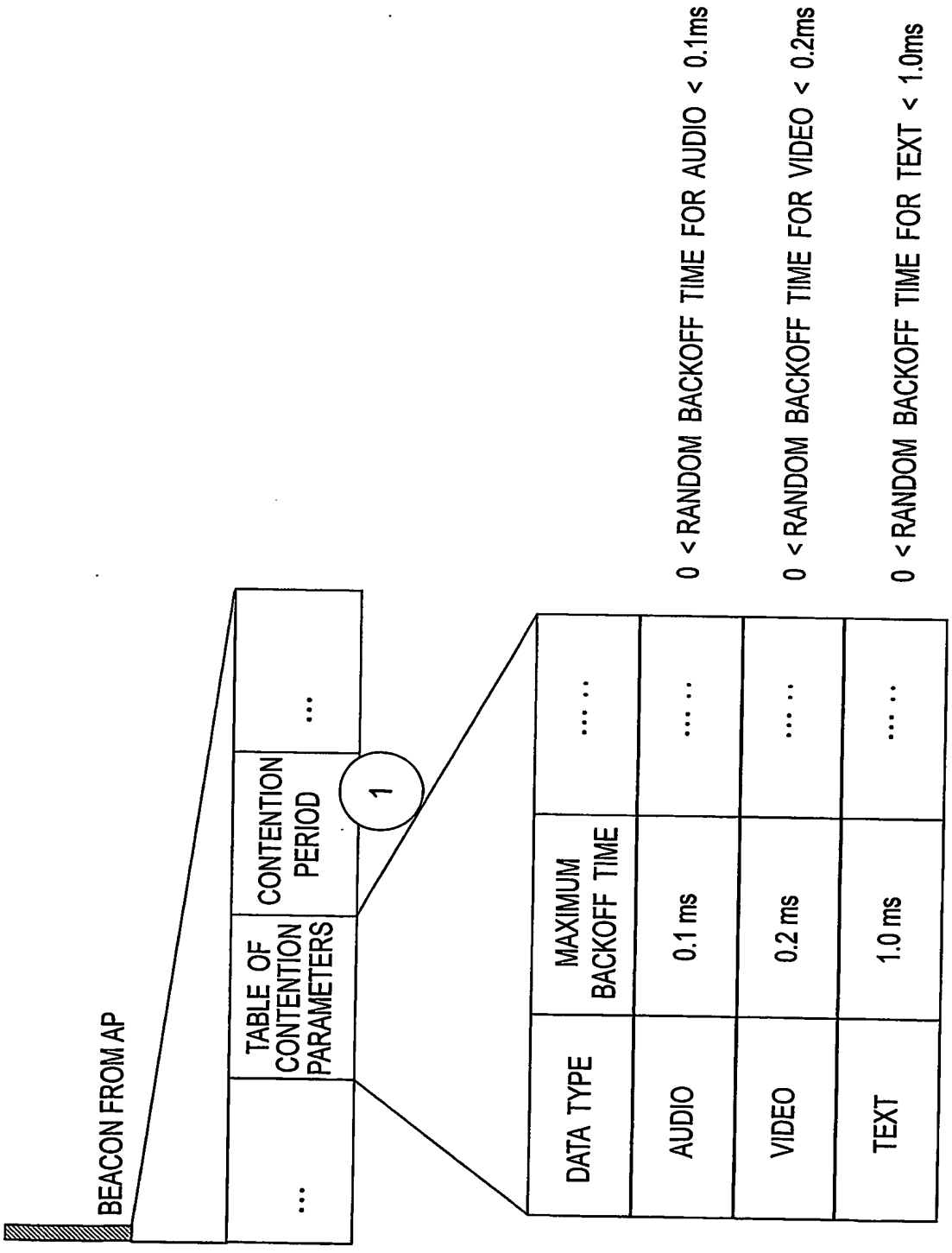

BEACON FROM AP
...
TABLE OF CONTENTION PARAMETERS
CONTENTION PERIOD
...
1
DATA TYPE
MAXIMUM BACKOFF TIME
AUDIO
0.1 ms
VIDEO
0.2 ms
TEXT
1.0 ms
0 < RANDOM BACKOFF TIME FOR AUDIO < 0.1ms
0 < RANDOM BACKOFF TIME FOR VIDEO < 0.2ms
0 < RANDOM BACKOFF TIME FOR TEXT < 1.0ms

Fig.12A

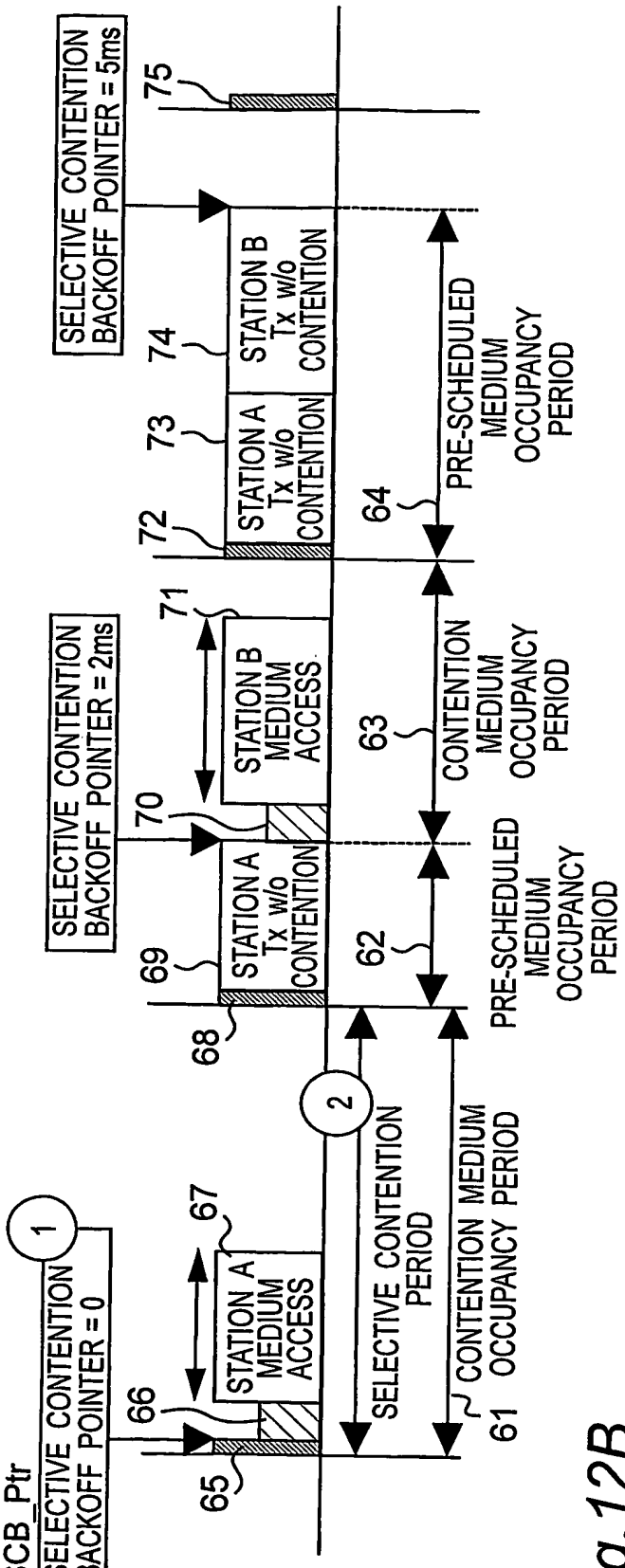


Fig.12B

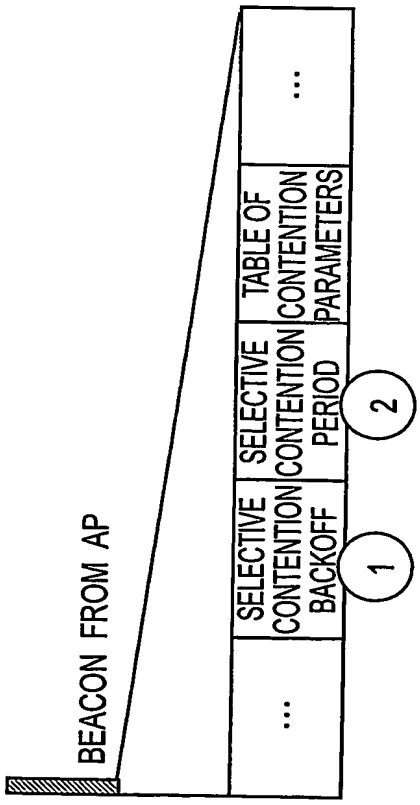


Fig.13A

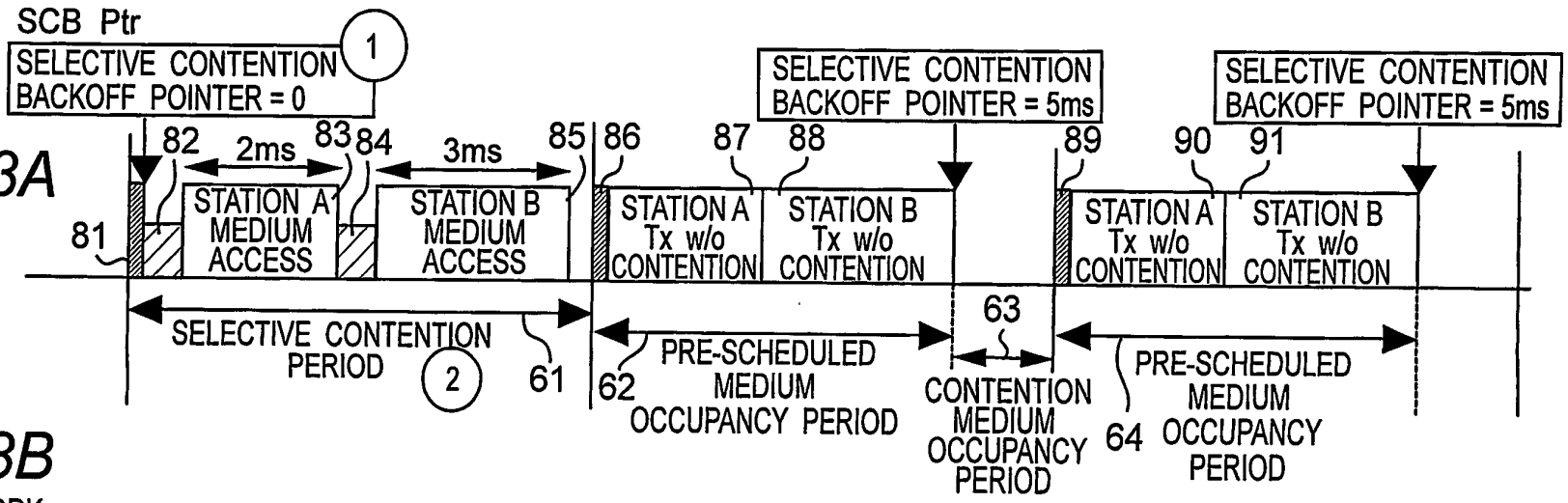


Fig.13B

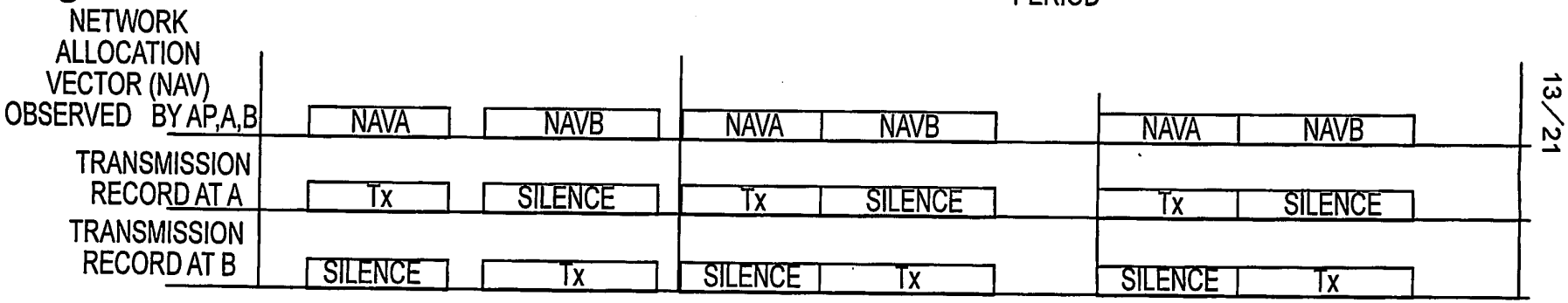


Fig.13C

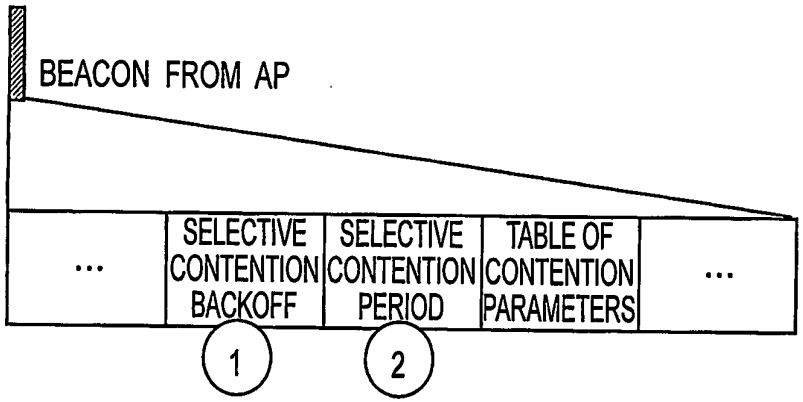


Fig.14

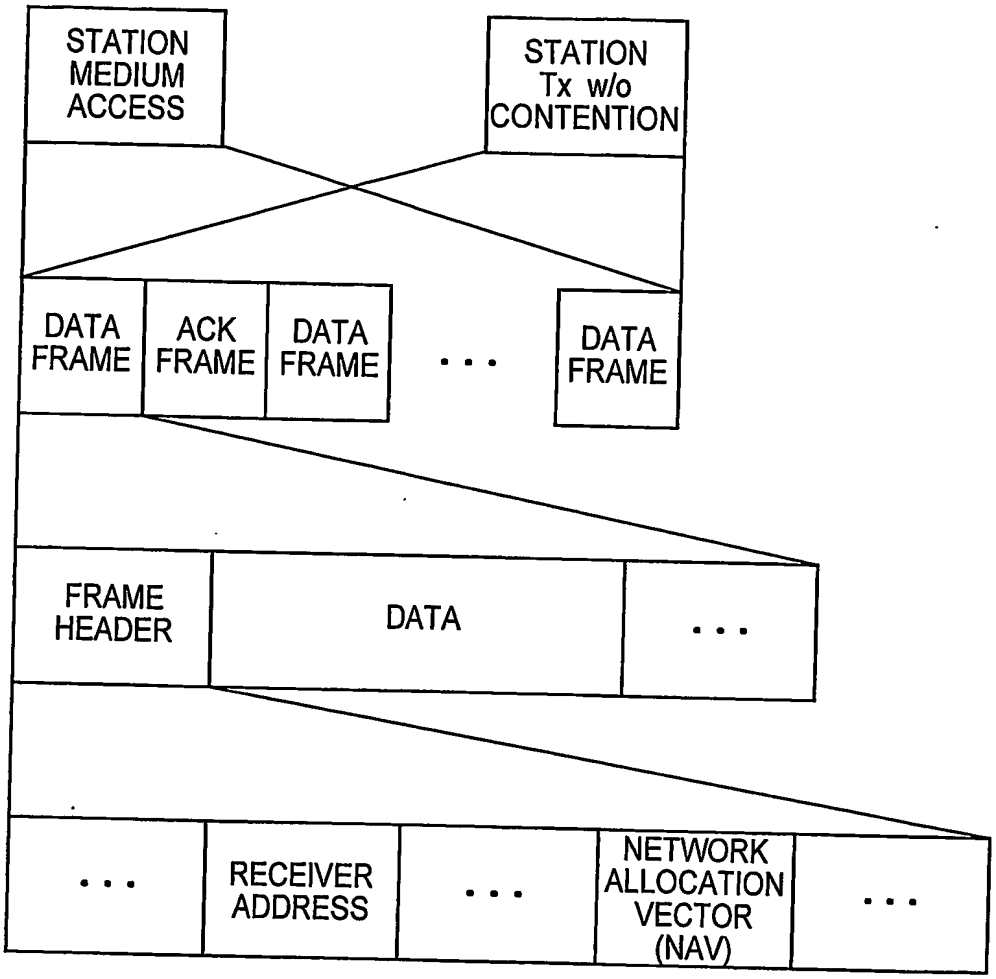

STATION MEDIUM ACCESS
STATION Tx w/o CONTENTION
DATA FRAME
ACK FRAME
DATA FRAME
DATA FRAME
FRAME HEADER
DATA
RECEIVER ADDRESS
NETWORK ALLOCATION VECTOR (NAV)

Fig. 15A

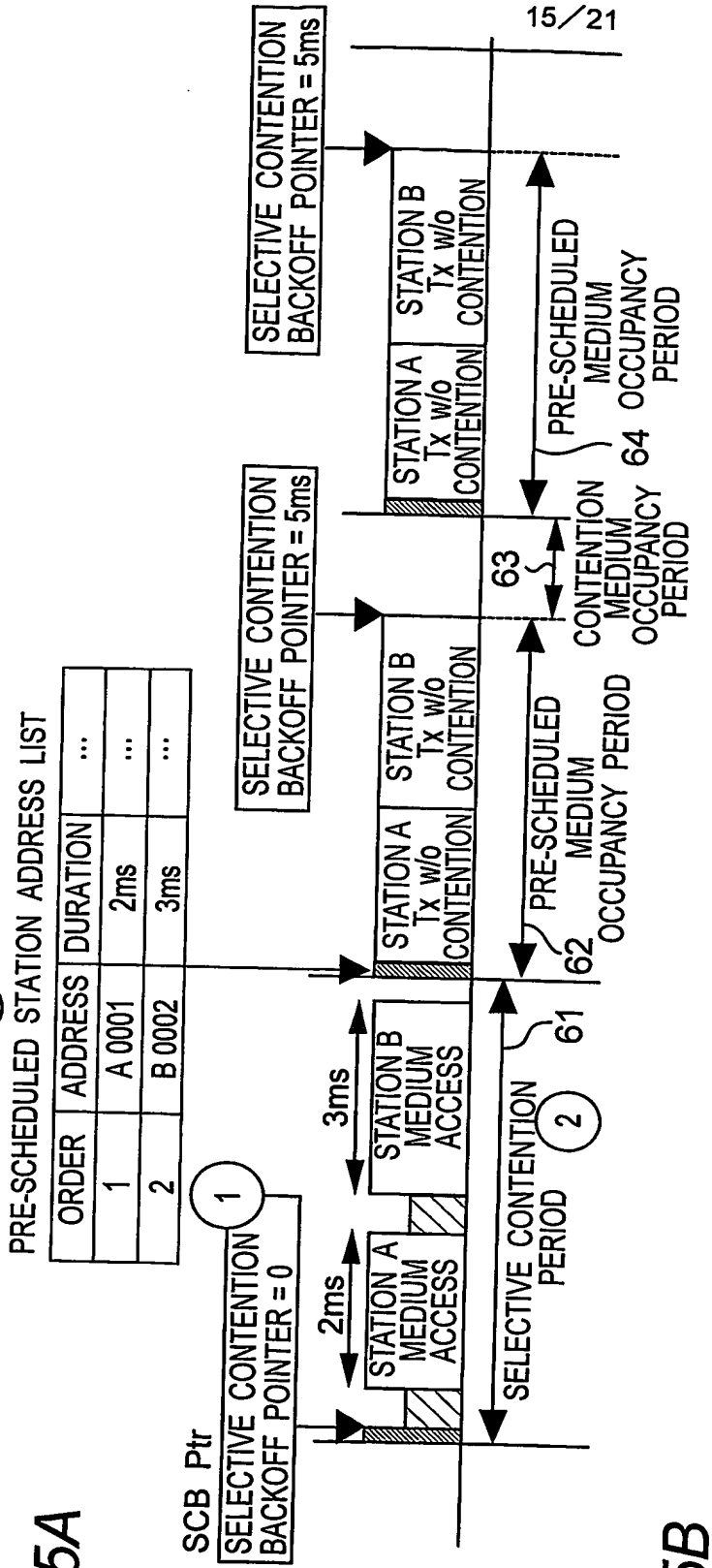
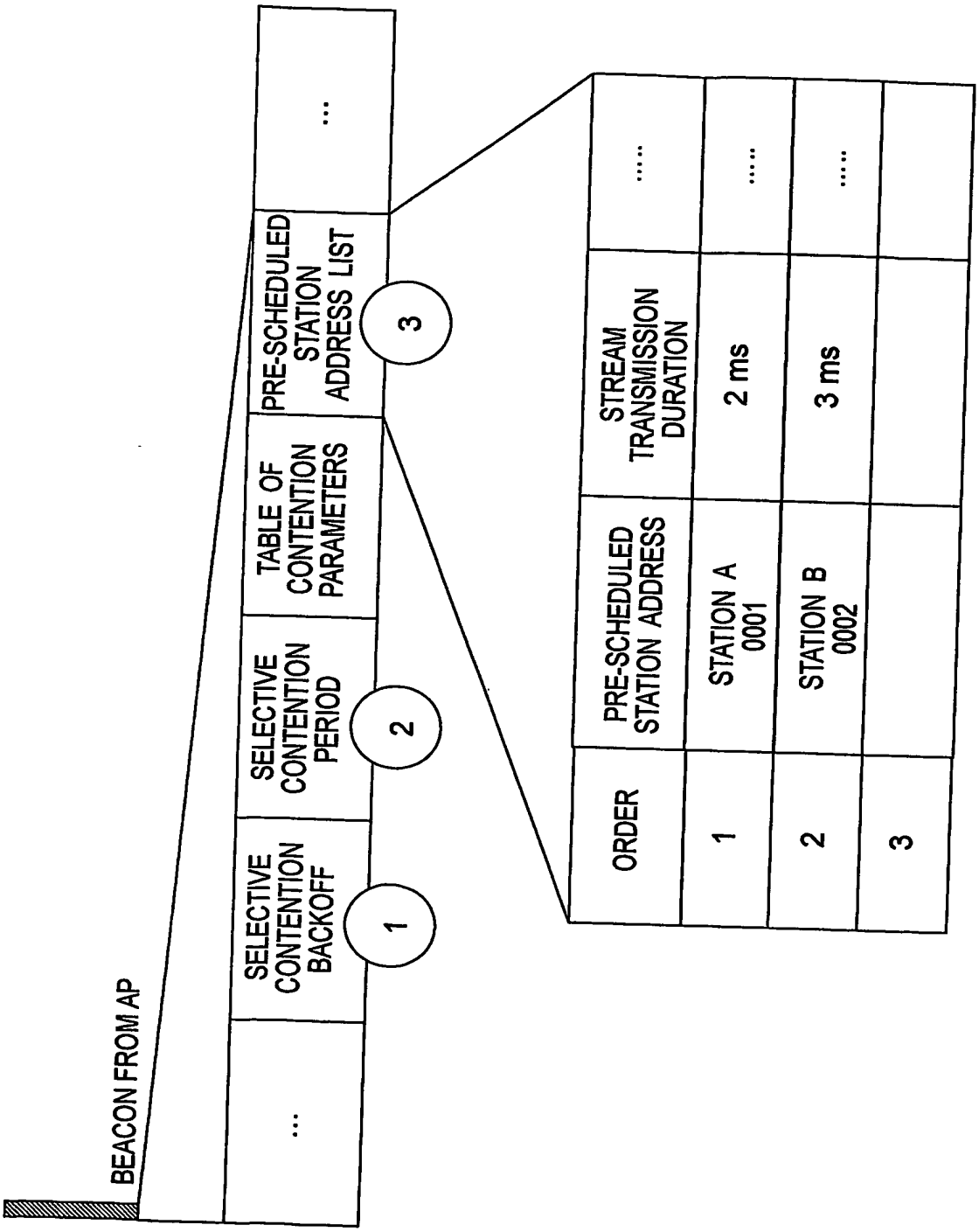


Fig. 15B

Fig.16


BEACON FROM AP
...
SELECTIVE CONTENTION BACKOFF
1
SELECTIVE CONTENTION PERIOD
2
TABLE OF CONTENTION PARAMETERS
PRE-SCHEDULED STATION ADDRESS LIST
3
...
ORDER
PRE-SCHEDULED STATION ADDRESS
STREAM TRANSMISSION DURATION
1
STATION A 0001
2 ms
2
STATION B 0002
3 ms
3

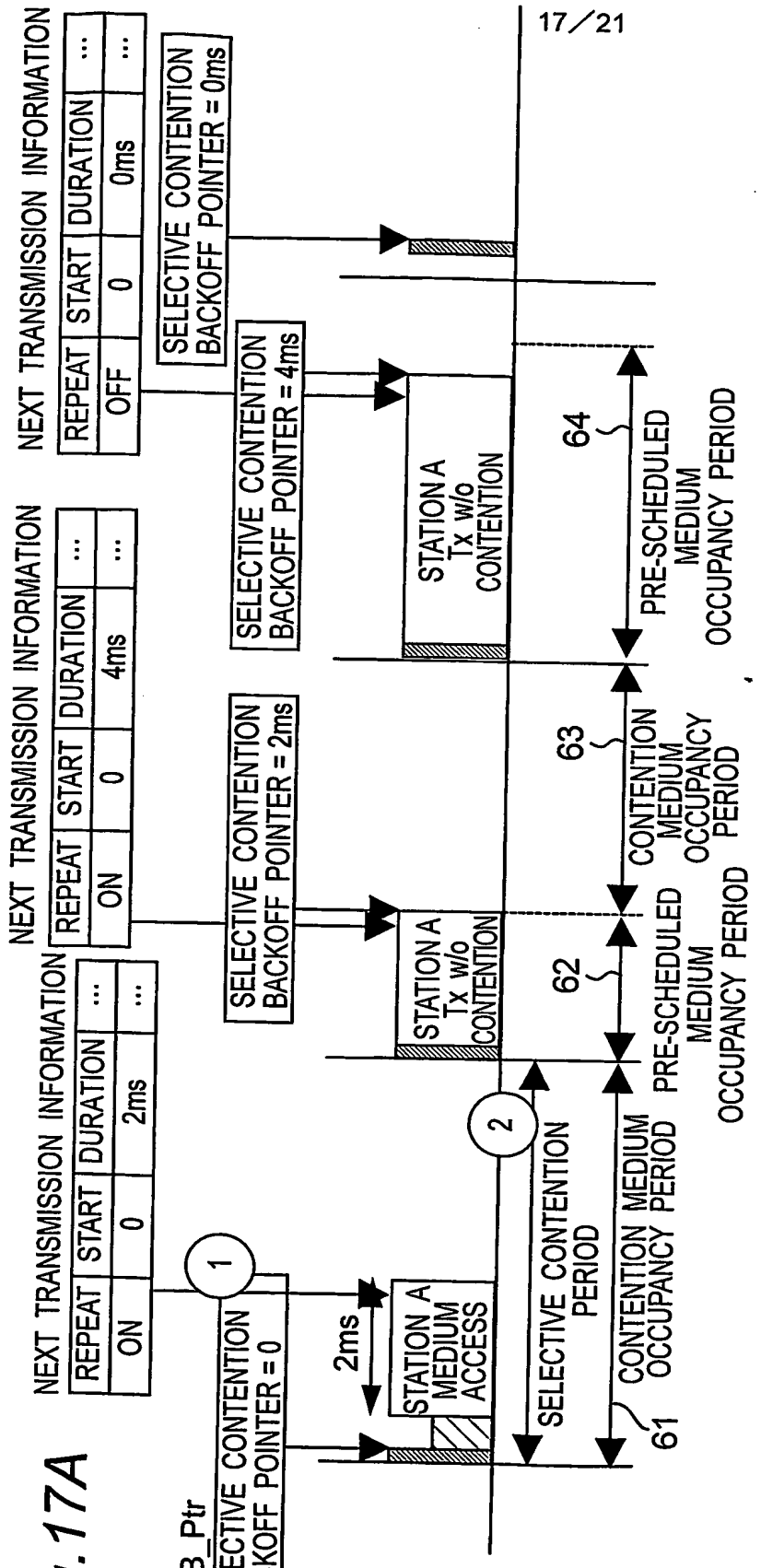


Fig.17A

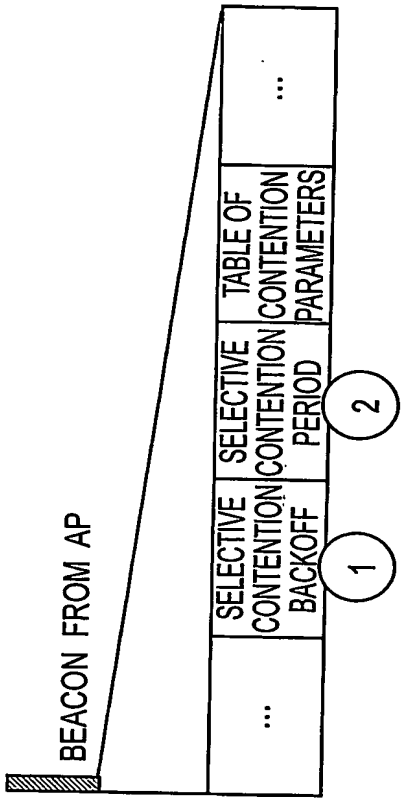


Fig.17B

Fig.18

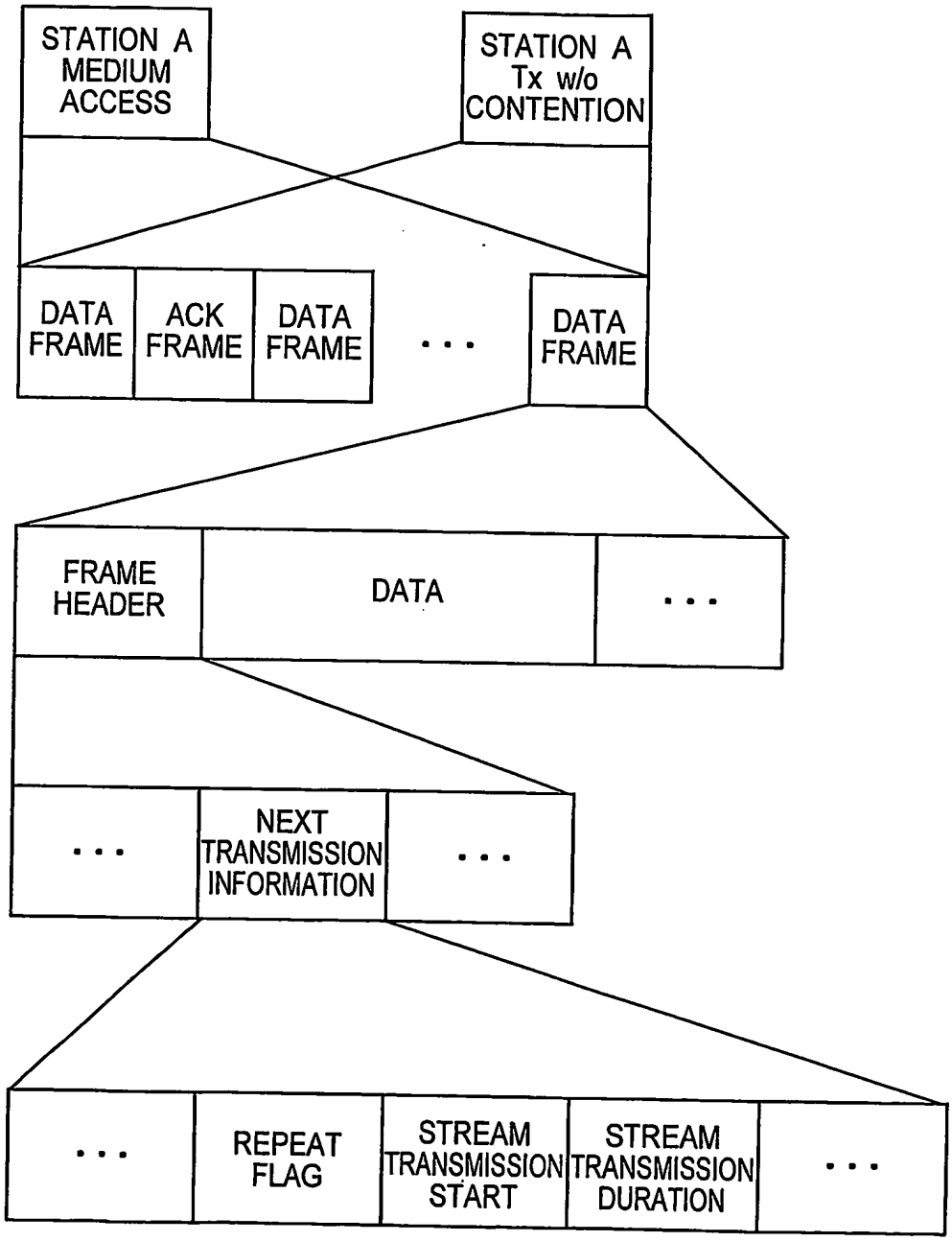

STATION A MEDIUM ACCESS
STATION A Tx w/o CONTENTION
DATA FRAME
ACK FRAME
DATA FRAME
DATA FRAME
FRAME HEADER
DATA
NEXT TRANSMISSION INFORMATION
REPEAT FLAG
STREAM TRANSMISSION START
STREAM TRANSMISSION DURATION

Fig.19A

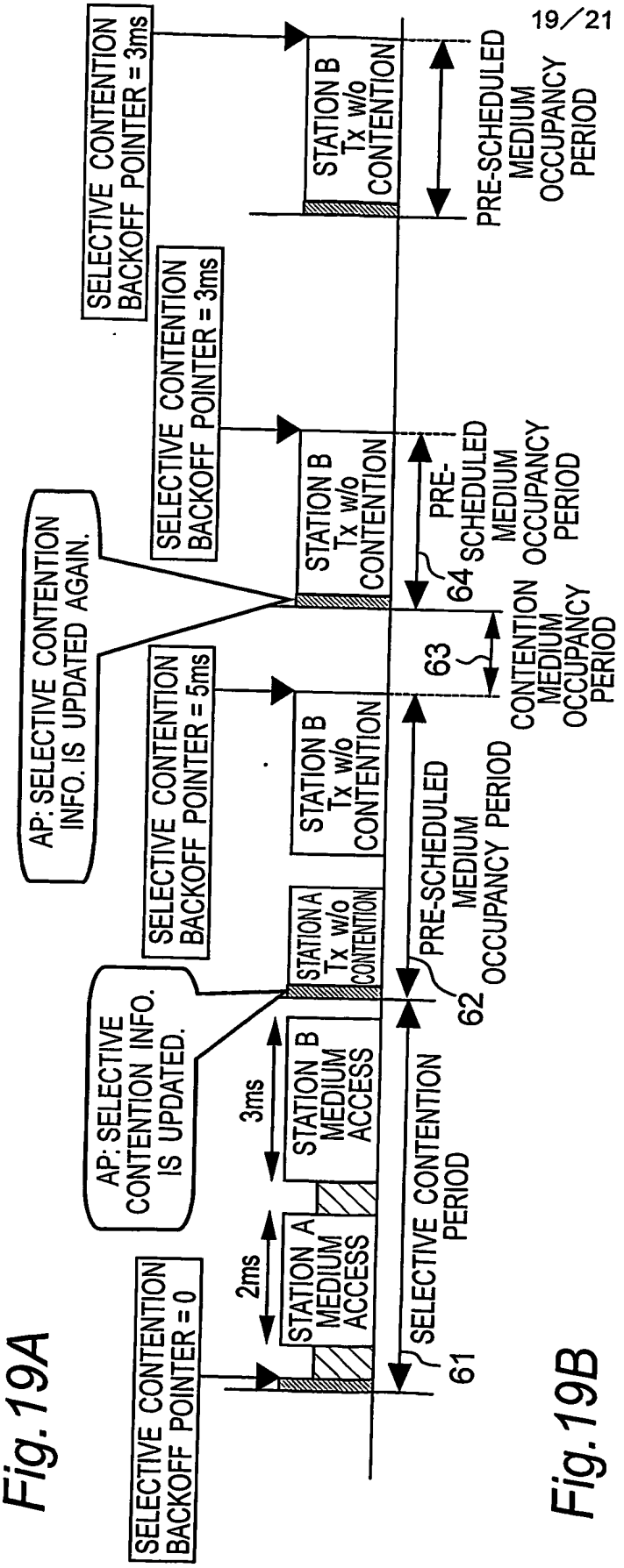


Fig.19B

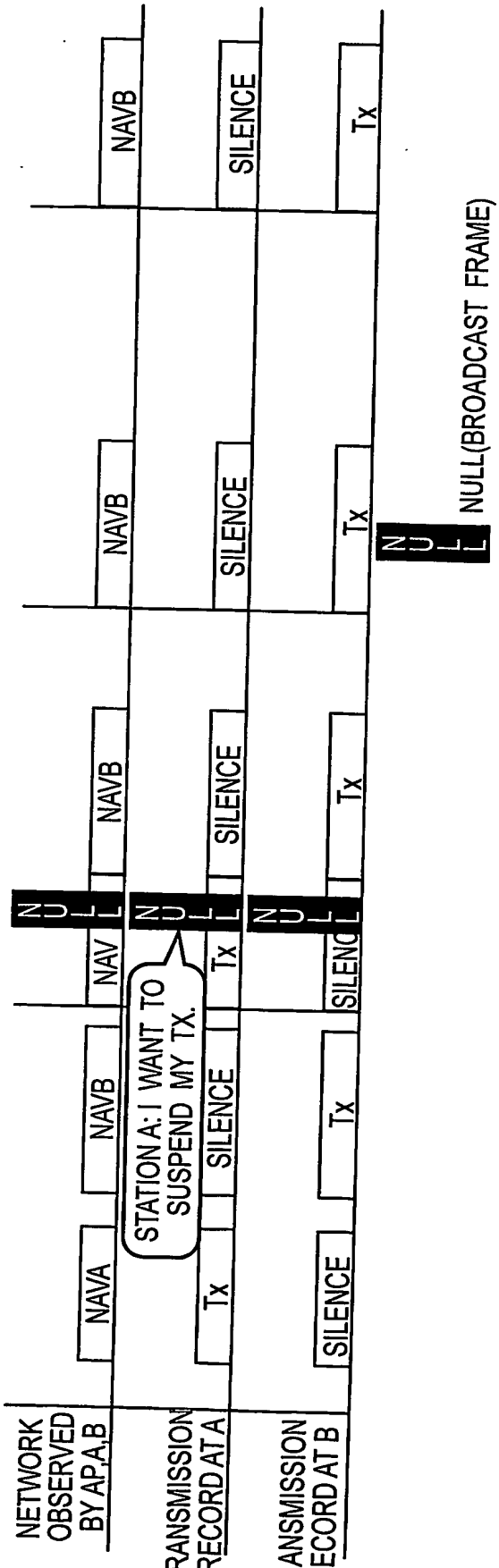


Fig.20

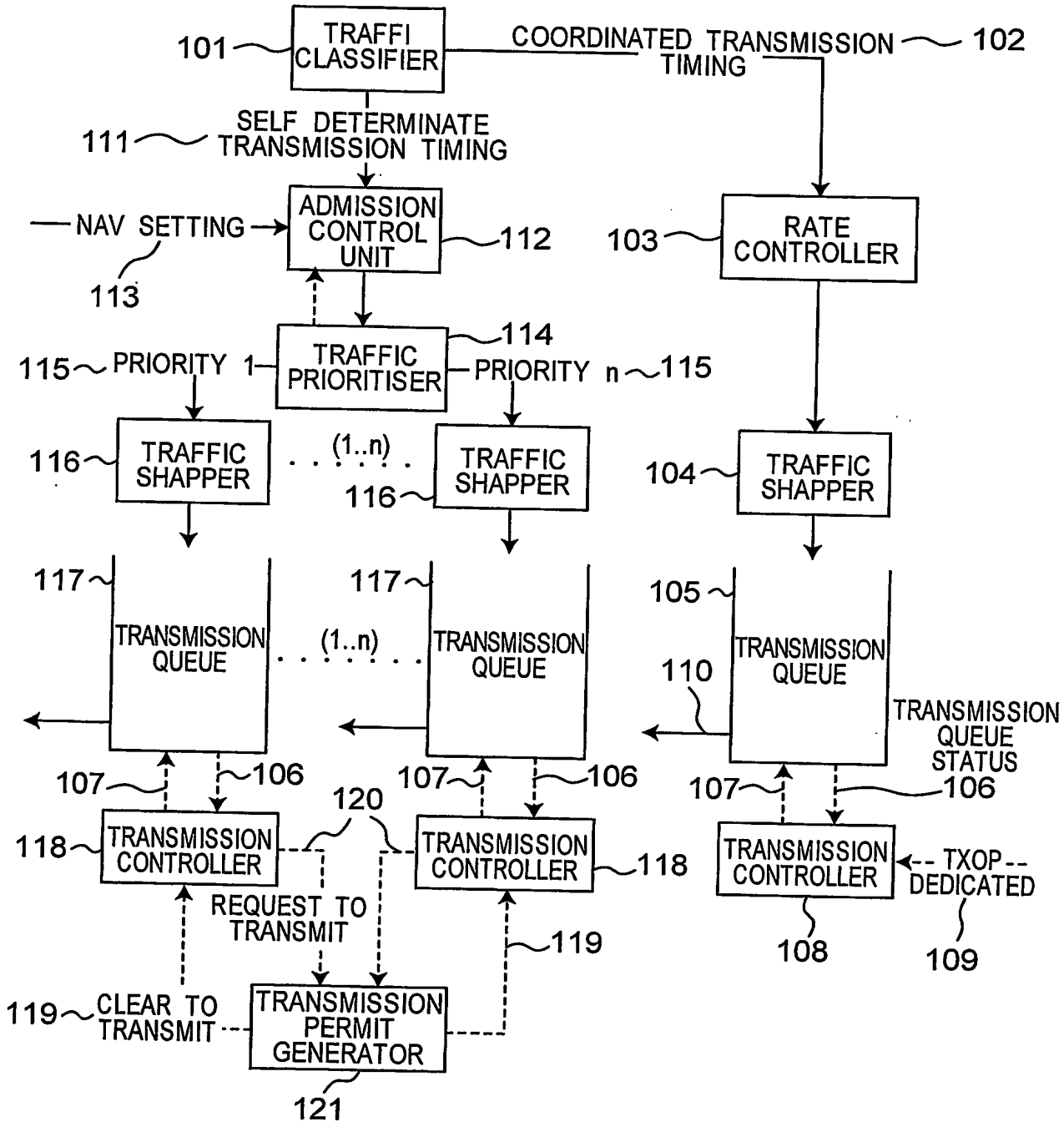
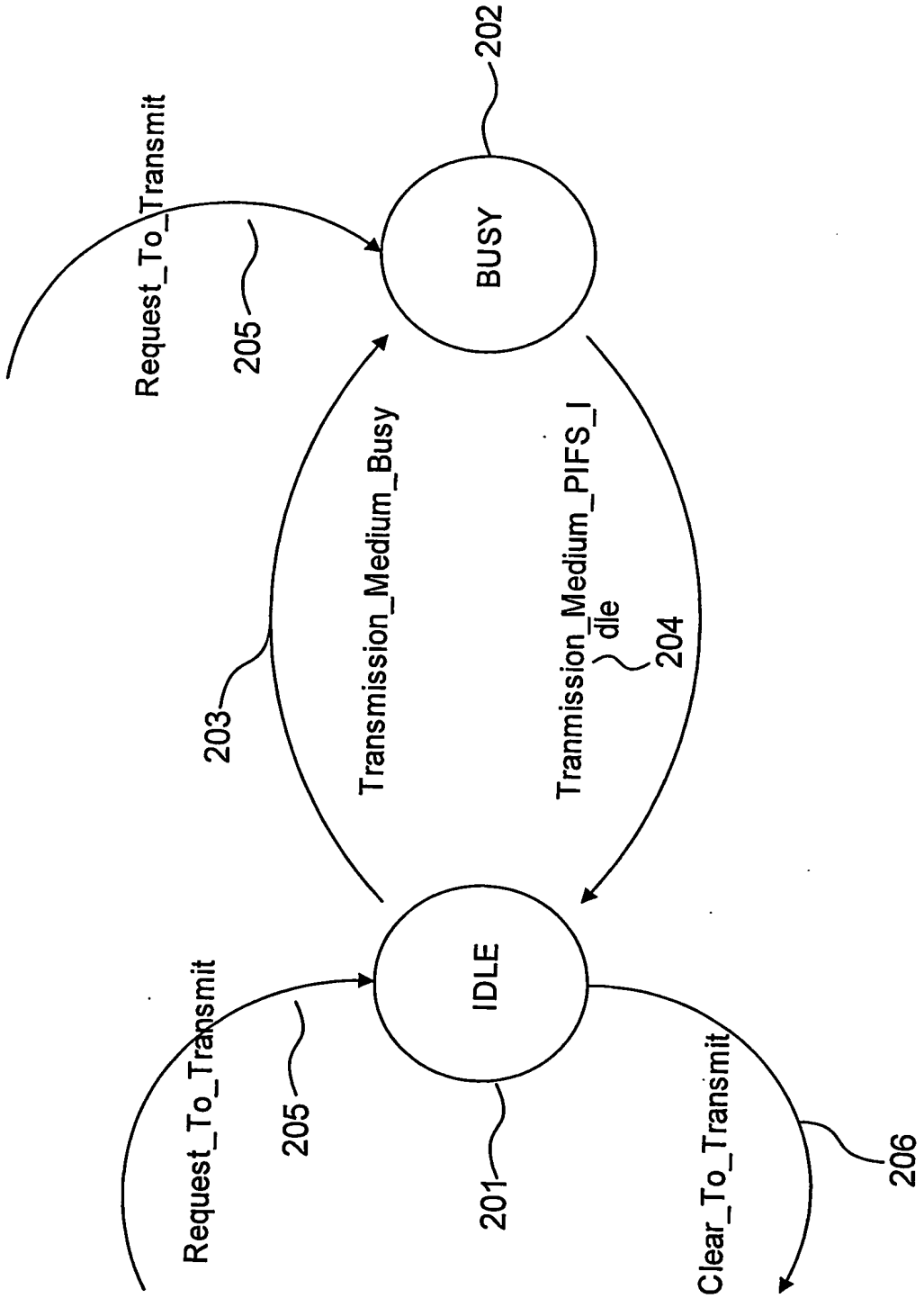

101
TRAFFI CLASSIFIER
COORDINATED TRANSMISSION TIMING
102
111
SELF DETERMINATE TRANSMISSION TIMING
NAV SETTING
ADMISSION CONTROL UNIT
112
103
RATE CONTROLLER
113
114
115
PRIORITY 1
TRAFFIC PRIORITISER
PRIORITY n
115
116
TRAFFIC SHAPPER
(1..n)
116
TRAFFIC SHAPPER
104
TRAFFIC SHAPPER
117
TRANSMISSION QUEUE
(1..n)
117
TRANSMISSION QUEUE
105
110
TRANSMISSION QUEUE
TRANSMISSION QUEUE STATUS
107
106
120
107
106
107
106
118
TRANSMISSION CONTROLLER
TRANSMISSION CONTROLLER
118
TRANSMISSION CONTROLLER
TXOP DEDICATED
REQUEST TO TRANSMIT
119
108
109
119
CLEAR TO TRANSMIT
TRANSMISSION PERMIT GENERATOR
121

Fig.21


BUSY
202
IDLE
201
Request_To_Transmit
205
Request_To_Transmit
205
Transmission_Medium_Busy
203
Tranmission_Medium_PIFS_Idle
204
Clear_To_Transmit
206